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Pullet Disease
(Blue Comb)

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Other names—Pullet disease also has been called blue comb, summer disease, unknown disease, X disease, cholera-like disease, contagious indigestion, acute toxemia, colibacillosis, new wheat disease, and avian monocytosis.

Cause—is unknown, evidenced by the wide variety of names given to the disease. Some of the names indicate possible causes of the characteristic "blue comb" condition observed.

Occurrence

Pullet disease has been reported from all sections of Ohio for a number of years. It has been reported also in most sections of the United States, with most reports from the northeastern states.

Disease occurs among the general purpose and light breeds of chickens. Most cases reported have occurred in pullets between the ages of 5 and 7 months. It is especially prevalent among pullets that start to lay in the summer or early fall and generally are housed during this period. Similar symptoms have been observed in chickens as young as 4 weeks and among older layers.

Turkeys may occasionally have the trouble. Majority of outbreaks of the disease occur between June and November with the peak in July and August. Incidence of the disease appears to vary from year to year in Ohio. It appears to be more prevalent during hot, dry weather.

Symptoms

In the acute form, a noticeable number (5 to 20 percent) of an apparently healthy flock of birds suddenly may appear depressed, lack appetite and have a watery diarrhea or be constipated. Some of the birds may have distended crops with sour smelling contents, darkened combs, sunken eyes, shrivelled legs, and, in later stages, high fever. Egg production drops severely. A few individual birds may show severe prostration, convulsive symptoms and impaired vision.

The disease extends over a period of a week or two and most of the birds recover. However, egg production may remain low for several weeks. Even though the disease has apparently subsided, it may occur again but usually in a less acute form.

In the less acute form, the disease may affect only a few of the birds occasionally. In such instances, the disease may be unrecognized and the birds classed as culls. It may be complicated by other factors such as leucosis.

Primary symptoms of pullet disease are not definite. If symptoms are observed in the summer or early fall months, it is probably blue comb. The possibility of other diseases known to be infectious should be considered.

Blood—is often characterized by increased thickness and tendency to coagulate. Venous blood pressure is low, making it difficult to secure a good blood sample. Hemoglobin content is increased about 15 percent. The monocyte, a type of white cell, is increased from a normal of about 8 percent to about 20 percent of total white cells.

These changes in the blood are of much significance in diagnosis when infectious diseases such as fowl typhoid and cholera are ruled out. Since the monocyte count is unusually high in pullet disease, it is sometimes referred to as "avian monocytosis."

Non-protein nitrogen content of the blood is usually high while the total chloride content may be extremely low.

Autopsy Appearance

Birds usually are well developed and well fleshed. Comb and wattles and mucous membranes of the nasal passages appear congested. Vent feathers are soiled by urinary material.

Contents of the crop—usually have a characteristic sour, putrid odor.

Muscles—especially the breast muscles, appear dehydrated. Pale areas may be present.

The liver—may appear fatty, congested, or contain from a few to many small yellowish areas varying in size, often with minute reddish centers.

Visceral connective tissues—often reveal a few scattered, small hemorrhages and may be coated with a yellowish material from broken egg yolks.

The spleen—is usually normal. This helps to tell pullet disease from bacterial and leucosis-like diseases, which are usually accompanied by a spotted or enlarged spleen.

The pancreas—normally a pinkish gray, is usually chalky with fine whitish areas.

Intestine—appears normal from the external surface, but the inner lining is coated with a cloudy mucous, usually removable as a coating or cast. It resembles catarrhal enteritis (inflammation).

Kidneys—may show varying degrees of enlargement, especially in front portions. They are usually grayish in color and filled with urates.

The ovary—often being in full production, presents irregular, soft, or broken egg follicles.

Similarity to Other Diseases

Pullet disease is difficult to diagnose since it shows some of the symptoms and autopsy characteristics of infectious diseases—fowl cholera, pullorum, or fowl typhoid. These may be ruled out by failure to find a specific bacterial agent by cultural, serological, and animal inoculation tests conducted in a laboratory.

Sub-acute or occasional cases of blue comb may resemble the internal form of leucosis. This has to be ruled out by the absence of tumors, a normal spleen, and a normal blood picture except for the large increase in monocyte type of white blood cells.

Prevention

Control by good preventive management.

It is best not to vaccinate birds for fowl pox or Newcastle during this period. Instead, vaccinate at an earlier age—8 to 12 weeks.

At time of housing, birds should be well fleshed, but not fat. Transfer from the range to the laying houses as gradually as possible and with a minimum of disturbance to the birds. Provide shade, good ventilation, and a clean water supply.

Treatment

Provide the affected flock with an abundance of clean readily available water and with cool, well ventilated, shaded quarters. Also reduce grain consumption.

The following treatments have been reported to check losses from outbreaks and to reduce the severity of the attacks:

One: As the only drink for about 7 days, provide 0.5 percent of good grade muriate of potash fertilizer (containing at least 60 percent potassium oxide K_2O) in water.

Potassium chloride may be used in place of the muriate of potash fertilizer and at the same level—1 tablespoon per gallon of water.

If the trouble persists at the end of the period of treatment, 1.5 percent of the potassium compound may be used in the mash feed for an additional 7 days.

Prolonged or excessive use of potassium chloride may have undesirable effects. Do not feed for long periods as a preventive.

Two: Use ½ to 1 pint of blackstrap molasses per gallon of drinking water for about a week. Or, mix 2 parts bran, 2 parts oats and 1 part molasses with enough water to make a crumbly mash. Give the molasses mash on alternate days for a period of an hour or so, after withholding feed for 2 to 3 hours.

Use of sulfa drugs—Symptoms and autopsy findings in blue comb disease sometimes resemble those due to cholera, typhoid, paratyphoid, or colibacillosis. Some outbreaks may be caused by one of these. Sulfamethazine and sulfaquinoxaline have been helpful in controlling outbreaks of these diseases and also may be helpful in controlling some apparent outbreaks of blue comb disease.

Since the disease usually occurs in hot weather, and since the appetite of affected birds is poor, medication probably should be given in the drinking water.

In treating apparent outbreaks of blue comb with sulfamethazine or sulfaquinoxaline, follow the manufacturers' instructions for treatment of cholera.

Similar Disease in Turkeys

An unfamiliar disease in turkeys has been described by such names as mud fever and blue comb. Symptoms of this turkey disease are similar to blue comb in chickens. In the work reported, this turkey disease was treated for 4 days. Every day each bird received 500,000 units of penicillin, 40 milligrams of aureomycin or 20 milligrams of terramycin. The medicant in each case was placed by means of a tube in the crop of each bird treated.

In one case, an outbreak in 600 poults was treated successfully by giving 100 parts per million terramycin in the mash and 5 parts per million in water.

No work has been reported on the use of the antibiotics for blue comb in chickens; however, it might be well to give it consideration.

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